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## RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte STEVEN A. BOGEN and HERBERT H. LOEFFLER

Appeal 2009-005697  
Application 10/823,368

## Oral Hearing Held: Tuesday, July 21, 2009

Before EDWARD C. KIMLIN, CHARLES F. WARREN and  
TERRY J. OWENS, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

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Appeal 2009 005697  
Application 10/823,368

1                   The above-entitled matter came on for hearing on Tuesday, July  
2 21, 2009, commencing at 2:02 p.m., at the U.S. Patent and Trademark  
3 Office, 600 Dulany Street, 9th Floor, Hearing Room A, Alexandria,  
4 Virginia, before Jennifer A. Hipp, Notary Public.

5                   MR. KIMLIN: Good afternoon, Ms. Cedroni.

6                   MS. CEDRONI: Good afternoon.

7                   MR. KIMLIN: You can begin when you're ready.

8                   MS. CEDRONI: Good afternoon. My name is Maria Cedroni  
9 and I am with the law firm Hamilton, Brooks, Smith, Reynolds and I  
10 represent the Appellant in this Appeal. I just want to talk a little bit about  
11 the overall invention that we're claiming, describe the rejection including the  
12 three references that the Examiner is maintaining in his Answer and discuss  
13 why the invention is not obvious in view of these references.

14                  Just for the sake of providing context I want to describe the  
15 invention by starting off with the field of the invention and in this case the  
16 field of the invention - the invention first of all is a dispensing assembly for  
17 dispensing liquid reagents onto microscope slides. In reality what this is, is  
18 it's used for automated microscope slide staining.

19                  Now as part of the record we submitted a declaration of Dr.  
20 Ron Zeheb. In this declaration, what Dr. Zeheb is doing is he's laying out  
21 the state of the art at the time of the invention as of 1994. So in his  
22 declaration he details what kinds of microscope slide staining happened in  
23 1994. These are essentially two different types. First, there's the routine  
24 slide staining and second is advanced microscope slide staining.

1                   Routine slide staining is pretty much what it sounds like. It's  
2 rather routine, the protocols were well set, and typically done in batches  
3 where all the samples were treated the same way. Advanced staining  
4 including three different kinds of staining and I'll get into those in more  
5 detail when I talk a little bit more about the invention. So the three different  
6 kinds of advance staining were special stains. These were ones that required  
7 greater attention. The protocols weren't as set and you had to - it's actually  
8 considered an art by the technicians.

9                   They had to watch the samples mostly to see when a certain  
10 color was achieved they could know when to continue with the protocol.

11                  MR. KIMLIN: But the claims really aren't directed to do these  
12 types of stains or any particular stain?

13                  MS. CEDRONI: No, they are not. I'm trying to put into  
14 context the field because it's important to figure out why the invention wasn't  
15 obvious. The field of the invention really was microscope slide staining so --

16                  MR. KIMLIN: My point is, though, that your claims are  
17 extending beyond this field.

18                  MS. CEDRONI: Well, this is not - what I'm trying to do is not  
19 describe the scope of the claims but to put into context why the invention is  
20 not obvious. So moving on to the invention itself, it improved on the prior  
21 art devices by employing a more efficient method of heating and combine  
22 that with an automated liquid dispenser and a microprocessor and the ability  
23 to move either the liquid dispenser, the platform on which the slides rest or  
24 both.

1                   Now before I get into the specifics of the claims I would just  
2 like to talk about a few specific embodiments of the invention. Unless  
3 you're using a different version, I'm using the published application so.

4                   MR. WARREN: We just have the basic specifications.

5                   MS. CEDRONI: Okay. I have that too then. So turning to  
6 figure 5 of the specification then, this is a complete embodiment of the  
7 invention and underneath the slide cover which is item number 532 on there,  
8 and that's where the microscope slides are. In this embodiment the slides  
9 rotate to the dispensing station which is on the left hand side of the diagram  
10 and is item 508, where the liquid reagent is dispensed onto the slides. The  
11 dispensing station in this embodiment is stationary.

12                  What happens is the liquid dispensers which are the items  
13 labeled "CP" for cartridge pumps rotate because the reagent rotor which is  
14 item 506 to the dispensing station. Now if you turn to figure 1 you can see  
15 how the liquid dispenser actually works. The cartridge pump which is again  
16 item CP pulls the volume of liquid reagent.

17                  When the cartridge pump is at the dispensing station which is  
18 that large item on the previous figure and the slide is in position under the  
19 dispensing station, the hammer which is item 10 pushes on the metering  
20 chamber and liquid reagent is dispensed through the nozzle, item 5 onto the  
21 slide. So in this particular embodiment what you have is the liquid reagent -  
22 the liquid dispenser that moves and you have the slides that move.

23                  Now figures 6 and 7 describe the heating system of the  
24 invention. So figure 6, item 514 is the slide frame base which is the  
25 platform which is what supports the slides in the plural heated surface areas.

1 So the platform includes plural heated surface areas which is figure 7 is item  
2 516 so these are the areas the microscope slides directly rest on.

3 So in particular what the claims are directed to is the dispensing  
4 assembly having a platform which as I've described, have plural heated  
5 surface areas. Those plural heated surface areas are heated by an electric  
6 heater which is underneath the plural heated surface areas. The plural heated  
7 surface areas really are areas where the microscope slides sit. They sit  
8 directly upon the heated surface area that is in contact with and directly  
9 underlies the microscope slide.

10 Now of course there are other parts of the claim as well but this  
11 is mostly what we're relying on. The claims also call for plural temperature  
12 sensors on the platform for sensing the temperature with respect to the  
13 heated surface areas. The benefits of the invention, by having plural heated  
14 surfaces it allows greater control of the reaction conditions because you can  
15 program the microprocessor which is also part of the claims, to selectively  
16 heat slides and it's also a more efficient way of heating microscope slides  
17 because it requires less energy to heat just the area underneath the slide and  
18 also is unlike incubators which were in the prior art.

19 It doesn't require heating all the various components that are  
20 also within the incubating chamber. This combined with the fact that the  
21 liquid dispenser and the platform are adapted for relative movement. And  
22 the microprocessor, which is another part of the claims, also allows for  
23 greater control of reaction conditions than the prior art.

24 Now moving onto the rejection, the Examiner has rejected all  
25 of the pending claims as obvious over two primary references, Heidt or Kerr,

1 each in view of Potter. Another thing these references alone or in  
2 combination do not render the claimed invention obvious for at least three  
3 different reasons. First, if you combine all the references you still don't  
4 arrive at the claimed invention. Second, Heidt and Kerr which are the two  
5 primary references actually teach away from the claimed invention.

6                   And finally, there is no motivation in the art as described by Dr.  
7 Zeheb to combine or alter the teachings of the three references to come up  
8 with the invention that's claimed. Now first turning to the two primary  
9 references, these are similar devices in Heidt and Kerr. Heidt and Kerr teach  
10 a chemical analyzer that accommodates reagent test slides.

11                   In fact, in Heidt itself Heidt distinguishes the apparatus that he  
12 claims from the type of apparatus that we are claiming. If you look in  
13 column 1 of Heidt he talks about his embodiment and describes it as a  
14 chemical analyzer and then directly contrasts that with wet chemistry  
15 analyzers which - and I'm quoting here - "such as described above are  
16 usually complex and expensive, required skilled operators, and necessitate a  
17 considerable expenditure of time and effort and repetitive cleaning  
18 operations." So there he's saying "my invention is not a wet chemistry  
19 analyzer."

20                   It is not the dispensing assembly that we're claiming in this  
21 application. Kerr also utilizes this same type of device that uses chemical  
22 analyte slides. Chemical analyte slides are slides that have dry reagent on  
23 them. The reagent is impregnated onto the test slide itself and if you drop a  
24 sample onto that slide and depending on the reaction between the sample

1 you dropped onto it and the reagent that's impregnated on this test slide, you  
2 have your outcome of the test results.

3 So for example, both Heidt and Kerr talk about a dispensing  
4 assembly - or I'm sorry, a chemical analyzer where a drop of blood is  
5 dropped onto these chemical analyte slides and depending on the color  
6 reaction you can determine whether or not the subject has a particular  
7 disease or not.

8 MR. WARREN: Counselor?

9 MS. CEDRONI: Yes.

10 MR. WARREN: You claim calls for the dispensing area for the  
11 slide, correct?

12 MS. CEDRONI: Yes.

13 MR. WARREN: Currently in clause C assumes that there will  
14 be a biological sample on that slide?

15 MS. CEDRONI: Yes.

16 MR. WARREN: So we can assume with the prior art that you  
17 can put a slide on there that has biological sample on it and the prior art will  
18 dispense some liquid onto that slide, correct, such as a drop of blood?

19 MS. CEDRONI: Our claims have a microscope slide that has a  
20 biological sample on the slide itself.

21 MR. WARREN: It says "adapted to have."

22 MS. CEDRONI: Okay, yes.

23 MR. WARREN: So I'm saying that if somebody in the prior art  
24 took all those - took an apparatus and put a slide on there which already had

1 a biological substance on it, perhaps antibodies, perhaps antigens, and put a  
2 drop of blood on them would that be your apparatus?

3 MS. CEDRONI: I think that is correct. That could be. What  
4 our claims call for is a microscope slide adapted to have a biological sample  
5 and just dropping a reagent onto it so that reagent could in fact be a  
6 biological sample.

7 MR. WARREN: Well, what I'm saying is if you drop a drop of  
8 blood onto it I'm not sure you can say that that wasn't something that was  
9 going on in the slide, for example, if you want to check out that drop of  
10 blood against an antibody or if you want to check the antibodies in that  
11 blood against an antigen.

12 MS. CEDRONI: Right, and I think that is something that could  
13 be encompassed by the claims of our patent. What I'm --

14 MR. WARREN: Well, also they're encompassed by the prior  
15 art.

16 MS. CEDRONI: Well, not by Heidt and Kerr, the two  
17 references I'm talking about here. Here they aren't using microscope slides.  
18 What they're using are chemical analyte slides which are very different from  
19 a microscope slide which is typically a flat piece of glass that you will use to  
20 put underneath a microscope and look at whatever is on the microscope  
21 slide.

22 MR. WARREN: Why couldn't you apply a microscope on the  
23 slides are the prior art?

24 MS. CEDRONI: For Heidt and Kerr the slides are impregnated  
25 with a reagent so when the sample is dropped onto the microscope slide

1 there's a color reaction between the sample and the reagent on the slide and  
2 so what you do is, it's just measured colorimetrically.

3 MR. WARREN: But you can't take that and put it under the  
4 microscope?

5 MS. CEDRONI: You could but it wouldn't help you determine  
6 the outcome of the reaction.

7 MR. WARREN: But how does that affect your dispensing  
8 assembly?

9 MS. CEDRONI: The slides, the chemical analyte slides of  
10 Heidt and Kerr are not in fact microscope slides. They are reagent slide.

11 MR. WARREN: But they could still be viewed under a  
12 microscope, could they not?

13 MS. CEDRONI: I'm not sure of the dimensions of them, in all  
14 honesty but they're very different things.

15 MR. WARREN: So the microscopes vary with the very large,  
16 the very small to accommodate any shape that you would like to put under  
17 there.

18 MS. CEDRONI: Using that analysis there are many different  
19 things that you could put under a microscope that wouldn't be a microscope  
20 slide.

21 MR. WARREN: Well, if it's something that you can slide  
22 under a microscope aperture then it would be a microscope slide, would it  
23 not?

24 MS. CEDRONI: I don't think that's entirely true especially for  
25 one of skill in the art that would be looking at these devices and recognizing

1 Heidt and Kerr as chemical analyzers, especially given how Heidt describes  
2 his invention.

3 MR. WARREN: One of ordinary skill in the art is one who  
4 routinely works in the lab or anyone who is only a technician. Would they  
5 not adapt to the materials at hand in order to carry out their experiments  
6 including an apparatus which they may happen to have?

7 MS. CEDRONI: I think when someone is using a device such  
8 as the ones described in Heidt and Kerr they're using them for something  
9 other than microscope slide staining as that is commonly recognized. What  
10 you're doing is you have the slides with the reagent and you're dispensing  
11 just one sample, you're dispensing blood onto the microscope - I'm sorry,  
12 onto the chemical analyte slide.

13 For this embodiment if you look at our invention it calls for  
14 dispensing of reagent. It's not calling for a sample.

15 MR. WARREN: Well, are you aware that there are decisions  
16 that say the material on which an apparatus works is not a part of that  
17 apparatus?

18 MS. CEDRONI: Yes, I know that those cases exist but in terms  
19 of what the invention is, it is a liquid dispenser. It is a dispensing assembly  
20 for dispensing liquid reagent onto a microscope slide so the field of the  
21 invention, again, is microscope slide staining.

22 MR. KIMLIN: Why wouldn't blood be considered a reagent?

23 MS. CEDRONI: It certainly could be but in terms of Heidt and  
24 Kerr all you dispense is that. For microscope slide staining typically what  
25 you do is you dispense a reagent onto the sample that you have sitting on the

1 slide. You then have to wash that reagent off and then typically you have  
2 more than one reagent. You have another reagent and you do another wash.

3 It's very different and I think we're getting farther away from  
4 the invention than I really want to right now. The point is that Heidt and  
5 Kerr really are directed to these chemical analyzers and the needs associated  
6 with those chemical analyzers are very different from the needs associated  
7 with the liquid dispensing assembly that is claimed.

8 Furthermore, both Heidt and Kerr teach incubators to heat  
9 slides and what an incubator is, is it's an area that's heated. The air is heated  
10 in that area and the slides are heated through the air basically. There's no  
11 direct heat to the slides. And for these chemical analyte slides you had a set  
12 temperature that you wanted to get the slides heated up to, to facilitate the  
13 reaction.

14 These conditions really needed to be the same for each slide if  
15 the reaction were to mean anything.

16 MR. WARREN: But how does clause A distinguish over that  
17 particular feature in the prior art?

18 MS. CEDRONI: So in both Heidt and Kerr there's - it's an  
19 incubator. There's a heat source but what it's doing is heating the entire area  
20 so the entire area that the slides happen to be in reach a certain temperature.  
21 In clause A --

22 MR. WARREN: The microscope slides won't radiate heat  
23 supplied by the electric heater they're under?

24 MS. CEDRONI: No, I don't believe they do. In Heidt it  
25 discloses a heating system where the air inside a cabinet enclosure is heated

1 and the slides are heated indirectly by radiation heat basically. So what you  
2 have in clause A is you have a platform that has more than one heated  
3 surface area.

4 That surface area is heated by an electric heater that is  
5 underneath the heated surface area and each surface area is adapted to be in  
6 contact with and underlie a microscope slide so there's direct contact  
7 between the heated surface area and the slide which allows for selective  
8 heating of the slides. And as I stated previously, it allows for more efficient  
9 heating of the slides because all you have to do is heat that one area.

10 Also in both Heidt and Kerr if you look closely at how the  
11 things are actually heated, in both of them the slides are inserted into the  
12 platform or into some other area to hold the slides so what you have is the  
13 slides are inserted in there. There's nothing underneath the slides so there's  
14 nothing underlying the slides as there are in our claims.

15 Turning now to Potter, Potter is the secondary reference the  
16 Examiner has used in combination with Heidt or Kerr for his rejection that  
17 the stated claims are obvious. Potter discloses an apparatus capable of  
18 independently regulating the heating of each sample in a sample container  
19 designed for rapid heat transfer to a set temperature.

20 So really what Potter is designed for is a sample container as in  
21 a well. You put liquid samples into the wells and then you need to vary the  
22 heat rapidly. This is usually used for things like DNA amplification so for  
23 instance, or polymerase chain reaction, PCR, you need to heat the sample  
24 different ways. You have to have really high temperature and then very  
25 quickly you have to come down to another temperature and then change the

1 temperature so really it's talking about rapid heat transfer, rapid temperature  
2 changes for Potter.

3 Now Potter is designed, like I said, for rapid heat transfer and  
4 usually you have a small amount of sample or expensive reagents and  
5 because you are changing temperature so much one of the primary concerns  
6 is to reduce evaporation. And the way that you do this is with the lid so  
7 what this means is that the system of Potter is completely closed off to the  
8 outside environment as you need to prevent evaporation.

9 And this is telling in Potter. Potter does not have a liquid  
10 dispenser. There's no automation and nothing moves in Potter. This is  
11 completely incompatible with the dispensing assembly as claimed. If you  
12 have something where the samples are sealed with a lid you can't dispense  
13 reagent into it. One of skill in the art looking to Potter is not going to see  
14 something that would be useful for microscope slide staining, especially in  
15 this embodiment where you have a reagent that is dropped down onto the  
16 microscope slide and where you have a lot of moving parts.

17 So there are a lot of differences between Heidt and Kerr and  
18 Potter and the claimed invention. First, none of them are actually directed to  
19 microscope slides. None of them are directed to the field of the invention  
20 wherein such that one of skill in the art would consider combining the three  
21 together to come up with the invention claimed.

22 Moreover, they don't teach the plural heated surface areas. The  
23 primary ones don't teach plural heated surface areas and Potter doesn't teach  
24 plural heated surface areas in a way that's actually adapted to microscope  
25 slides.

1                   MR. KIMLIN: Doesn't plural heated surface areas include and  
2 encompass a uniform surface area heated which in turn has plural heated  
3 surface areas?

4                   MS. CEDRONI: I'm sorry, can you say that again?

5                   MR. KIMLIN: In other words, if you had a uniform heated  
6 plate wouldn't that have plural heated surface areas that are heated?

7                   MS. CEDRONI: It doesn't have plural heated surface areas  
8 where each is heated by an electric heater which is what's claimed.

9                   MR. KIMLIN: That's another step.

10                  MS. CEDRONI: Does that answer your question, I'm sorry?

11                  MR. KIMLIN: Well, you added on a limitation that you cited  
12 previously.

13                  MS. CEDRONI: I'm sorry. The claims call for a plural heated  
14 surface area where the heated surface areas are heated by an electric heater  
15 that they're under so underneath it there is an electric heater and Heidt and  
16 Kerr don't teach this and Potter does not teach this in a way that is useful for  
17 a microscope slide.

18                  So all told we have two primary references that fail to teach the  
19 heating as claimed and are not directed to microscope slide staining. The  
20 secondary reference, Potter is also not directed to microscope slide staining,  
21 doesn't teach a heating system that's useful for microscope slide staining and  
22 doesn't have a liquid dispenser or any moving parts.

23                  This all comes down to, why would somebody of skill in the art  
24 try to combine these three references to achieve the invention as claimed.  
25 And we argue that there is no motivation and this is where the declaration of

1 Dr. Zeheb comes in. What he has explained is what the state of the art was.  
2 You have routine staining and advanced staining that I talked about.

3           Within the prior art, in the prior art of the time one of skill in  
4 the art would not have seen the need to have the heating system combined  
5 with the liquid dispenser and the relative movement of the claimed  
6 invention. This is because it would have been costly and complex to add, to  
7 modify the three references to come up with the claimed invention.

8           First you need to modify the devices taught in Heidt and Kerr to  
9 include plural heated surface areas, each heated by an electric heater. That's  
10 not simple or trivial. Second, you would need to further modify the devices  
11 to include plural temperature sensors and third, you would need to connect  
12 all of these to a microprocessor. Finally, this would be complicated by the  
13 fact that you have relative movement between the liquid dispenser and the  
14 microscope slides.

15           That means either the liquid dispenser, the microscope slides, or  
16 both move.

17           MR. KIMLIN: Let me interject that the claim language, the  
18 platform having plural heated surface areas each heated by an electric heater  
19 thereunder does not require separate electric heaters. The claim simply  
20 requires separate sensors for plurality.

21           MS. CEDRONI: So the claim reads "the platform having plural  
22 heated surface areas, each heated so that each heated surface area heated by  
23 an electric heater thereunder.

24           MR. OWENS: What if it were a big electric heater that heated  
25 the whole thing?

## 1 MR. KIMLIN: A uniform heat plate.

2 MS. CEDRONI: I read the claims as having the surface areas  
3 are each heated by an electric heater thereunder. Even if you read it as you  
4 are saying where you have one electric heater on the platform, none of the  
5 references, Heidt and Kerr still don't teach that, especially where you have  
6 the heated surface area further being adapted to be in contact with and  
7 underlie a microscope slide.

8                   That's not taught by Heidt or Kerr. So in Heidt and Kerr, as I  
9 stated previously those are incubators. You have a heated surface. You  
10 don't have the heated surface area. There really is no heated surface area.  
11 What's happening is you have an incubation chamber where everything in  
12 that incubation chamber is heated.

13                   Further, as I stated the chemical analyte slides of Heidt and  
14 Kerr are inserted into open space so if you imagine that you have a platform  
15 that has little carve-outs in it, the slide slides into that but there's nothing  
16 underneath that slide. So you definitely would not have heated surface area  
17 if it's in contact with and underlying the slide.

18 So again, there'd be no motivation to alter Heidt and Kerr or  
19 Potter to come up with the claimed invention. Routine staining, as I  
20 discussed was typically done in batches where all the samples were treated  
21 exactly the same. You put a bunch of slides into a basket and you dipped  
22 them into reagent and that's all you did. And they didn't require heating.

23 The advances staining, there were three different types. The  
24 one that I'll talk about is special stains and this is the one that - this invention  
25 actually did enable and in the prior art they didn't believe that this could

1 actually be automated because it was such an art. You had to watch the  
2 sample to figure out when it achieved a certain color to know when to  
3 continue with protocol.

4 Dr. Zeheb has included in his declaration, exhibits that describe  
5 protocols for special staining that show that you had - that it really didn't  
6 seem very suited to automation because you had to watch the reaction so  
7 closely which just isn't something you can automate or they didn't think you  
8 could automate.

9 And again, as you have mentioned the claims are not  
10 specifically directed to special stains. What we're trying to show you is one  
11 of skill in the art of the time had no motivation. Routine stains didn't require  
12 heating so there's no reason to have the heaters there. The two other types of  
13 advanced staining are immune histochemistry which is used to assess an  
14 antigen/antibody response and those all required heating to the same  
15 temperature, about body temperature usually.

16 And this is where the incubators came in so those were useful  
17 because everything had to be heated to the same common temperature so  
18 you didn't need the heating that this system has. And for in situ  
19 hybridization which is the last advanced stain, really what you're using, an  
20 example of this is you'd have a DNA probe that's labeled radioactively to  
21 determine if a particular DNA sequence exists in a given tissue sample.

22 In these systems you have to heat the samples up very high and  
23 again, evaporation is an issue so for those you had a cover slip or you had  
24 something covering the sample so you couldn't actually dispense reagent on  
25 it so this is the final advanced stain and there is just no motivation, there was

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1 no need for the dispensing assembly. No perceived need, I should say, for  
2 the invention that is claimed.

3 MR. KIMLIN: Your time is about up, Ms. Cedroni.

4 MS. CEDRONI: So for these reasons because there was no  
5 motivation to combine and because the invention is not obvious we ask that  
6 you reverse the Examiner's rejection. Thank you.

7 MR. KIMLIN: Thank you for coming.

8 Whereupon, at approximately 2:32 p.m., the proceedings were  
9 concluded.